

Serial No.: 10/534,170
Docket No.: 09792909-6249
Amendment "A" dated February 22, 2008
Reply to the Office Action of November 29, 2007

In the Claims:

This listing of claims replaces all prior versions and listings of claims:

1. (Currently amended) A solid-state imaging apparatus comprising:

a pixel array, said pixel array that includes comprising a plurality of pixels in a two-dimensional array;

~~an AD memory that includes~~

~~plurality of unit memories in a two dimensional array corresponding to a pixel arrangement in the pixel array, each unit memory including an AD converter circuit,~~

a pixel-array scanning circuit that scans the pixel array to read analog signals from the individual pixels to ~~the~~ an AD memory[[;]],

the AD memory comprising a plurality of unit memories in a two-dimensional array corresponding to a pixel arrangement in the pixel array for storing said analog signals, each unit memory including an analog to digital converter circuit, and

each said analog to digital converter circuit producing a converted digital signal by carrying out analog to digital conversion on a stored analog signal; and

a memory scanning circuit ~~that scans~~ for scanning the AD memory ~~to output~~ and outputting the converted digital signals from the individual unit memories.

2. (Currently amended) The solid-state imaging apparatus according to claim 1, further comprising an output unit that processes the digital signals output from the ~~AD memory~~ memory scanning circuit and outputs the processed signals ~~to the exterior~~ out of the apparatus.

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3. (Original) The solid-state imaging apparatus according to claim 1, wherein the individual pixels in the pixel array correspond to the individual unit memories in the AD memory in a one-to-one relationship.

4. (Original) The solid-state imaging apparatus according to claim 1, wherein the individual pixels in the pixel array correspond to the individual unit memories in the AD memory in an N-to-one relationship wherein $N \geq 2$.

5. (Canceled)

6. (Original) The solid-state imaging apparatus according to claim 1, wherein AD conversion is simultaneously carried out for all the unit memories in the AD memory.

7. (Original) The solid-state imaging apparatus according to claim 1, wherein the signals are read from the pixel array to the AD memory pixel row by pixel row, and AD conversion is simultaneously carried out for all the unit memories in the AD memory.

8. (Original) The solid-state imaging apparatus according to claim 1, wherein the unit memories comprise DRAMs.

9. (Currently amended) A solid-state imaging apparatus comprising:

a pixel array, said pixel array ~~that includes~~ comprising a plurality of pixels in a two-dimensional array; and

an AD memory ~~that stores~~ for storing analog signals read from the pixel array and ~~carries~~ carrying out AD conversion on these said analog signals, the AD memory ~~including~~ comprising a plurality of unit memories in at least ~~in~~ a two-dimensional array, and the plurality of unit memories ~~simultaneously~~ simultaneously carrying out AD conversion on signals from at least two rows of pixels simultaneously.

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10. (Original) The solid-state imaging apparatus according to claim 9, wherein the plurality of unit memories simultaneously carry out AD conversion on signals that are obtained by combining signals read from the pixel array.

11. (Original) The solid-state imaging apparatus according to claim 9, wherein the unit memories carry out noise removal and AD conversion on the signals from the pixel array.